On *March 20th* at $7^h\ 30^m$, and on *March 22nd* at $6^h\ 40^m$, faint markings were perceived. (Figs. 19 and 20.) On the latter date the phosphorescence of the dark side was very clearly seen.

March 26th. $6^h\ 10^m$. The planet appeared to be covered with dusky spots, but they were very faint and badly-defined. A bright marking was noticed at *a* (Fig. 21), the N. cusp was sharper than the S. cusp, and projected farther.

On *March 28th* at 6^h, and on *March 29th* at $7^h\ 25^m$, the S. cusp was noted as differing greatly in shape from the N. cusp, but both were perfectly sharp. A faint white streak was seen on both days extending from the S. limb parallel to the terminator. (Figs. 22 and 23.)

April 1st. $6^h\ 30^m$ to $7^h\ 0^m$. A very distinct dark streak was observed nearly concentric with the limb, and not far from it; this marking was seen without difficulty with an achromatic by Peter Dollond of $2\frac{1}{8}$ aperture. (Fig. 24.)

April 2nd. $5^h\ 0^m$ to $5^h\ 30^m$. Planet beautifully defined. A faint marking was visible very similar in shape to the dark streak observed on the previous evening. Both the cusps were drawn out to very fine thread-like points. (Fig. 25.)

In making the above observations, I generally used the full aperture of my 4-inch achromatic; but I sometimes found that the details visible on the planet (even on the most favourable occasions) were brought out better with the aperture reduced to $3\frac{1}{2}$ or 3 inches.

I used various negative eye-pieces, from 90 to 210.

I may mention that a few days ago I examined some drawings made by a young friend of mine, Mr. P. Wyatt of Bedford, who diligently scrutinized the planet with an achromatic of $2\frac{3}{4}$-inch aperture, the general correspondence of our sketches on those occasions when we happened to observe the planet at the same time was very satisfactory.

Phenomena of Jupiter's Satellites. By the Rev. S. J. Perry.

The regular observation of *Jupiter's* satellites was commenced at this Observatory with a view of aiding in procuring as complete a record as possible of these phenomena. The observations have all been taken with the full aperture of the 8-inch achromatic of Troughton and Simms, a power of about 300 being generally employed. The time was observed with a Frodsham chronometer, which has been almost invariably compared, on each night of observation, with the sidereal clock immediately after transits have been taken, the change of rate of both chronometer and sidereal clock being thus almost entirely eliminated.

Date. 1873.	Satellite.	Phenomenon.	Observed G.M.T. h m s		G.M.T. from N.A.— Obs. m s	Observers.	Remarks.
Jan. 25	I.	Ec. D.	2 2 47·7	A.M.	−0 24·0	W. C.	Hazy, approx.
	II.	Ec. D.	3 33 42·0		−0 40·2	,,	Unsteady.
	I.	Oc. R. first seen	4 48 35·6		+1 24·4	,,	,,
	II.	Oc. R. first seen	7 25 2·5		+0 57·5	,,	Very unsteady.
27	I.	Tr. E. int. contact	8 25 13·8	P.M.	+5 4·9	S. P.	,,
		ext. contact	26 36·3				
	IV.	Oc. R. first seen	9 3 15·9		+1 44·1	,,	
28	II.	Oc. R. first seen	8 33 57·5		+0 2·5	,,	Very unsteady.
Feb. 4	IV.	Tr. I. ext. contact	9 40 15·4			W. C.	Satellite almost as dark as shadow, darker than any bands.
		bisection	47 8·9		+8 51·1		
7	I.	Ec. D.	5 49 17·2	A.M.	+0 16·1	,,	
20	II.	Tr. E. bisection	9 33 6·5	P.M.	+2 53·5	,,	Hazy.
		ext. contact	38 10·0				
Mar. 3	III.	Sh. I. bisection	9 28 45·1		−3 45·1	S. P.	Glimpses through clouds, definition very good.
		Tr. E. bisection	11 25 41·0		+2 19·0	,,	Very cloudy.
		ext. contact	28 7·5				
5	I.	Tr. I. ext. contact	9 16 34·0			,,	Unsteady.
		bisection	17 59·9		+0 0·1		
		Sh. I. bisection	9 46 55·0		−1 55·0	,,	Bright ring.
		int. contact	48 16·6				Round shadow.
		Tr. E. int. contact	11 32 55·9			,,	
		bisection	34 39·4		+3 20·6		
		ext. contact	36 14·9				
		Sh. E. int. contact	11 59 56·0			,,	Misty.
		bisection	1 1·0	A.M.	+3 59·0		
8	II.	Oc. D. ext. contact	6 4 38·3	P.M.		W. C.	Cloudy.
		bisection	7 10·7		+1 49·3		
		Ec. R.	10 3 50·9		−0 57·1	,,	Full brightness 3m later.
11	I.	Ec. R.	4 37 34·9	A.M.	+0 7·5	,,	Full brightness 2m later.
12		Tr. I. ext. contact	10 58 48·5	P.M.			
		bisection	11 1 56·0		+1 4·0	,,	
		int. contact	4 46·5				
		Sh. I. first seen	11 40 11·0		−1 36·3	,,	
		int. contact	43 1·5				
13		Tr. E. int. contact	1 17 23·6	A.M.		,,	
		bisection	20 39·0		+2 21·0		
		ext. contact	24 45·4				
		Sh. E. last seen	1 57 37·2		+2 22·8	,,	Clouds.

Date. 1873.	Satellite.	Phenomenon.	Observed G.M.T.	G.M.T. from N.A.—Obs.	Observers.	Remarks.
			m s h m s			
Mar. 13		Ec. R.	11 5 55·8 P.M.	+0 20·7	W. C.	Full brightness 3m later.
14	II.	Tr. I. ext. contact	1 22 55·4 A.M.		,,	
		bisection	26 54·9	+0 5·1		
		int. contact	30 31·2			
		Sh. I. first seen	2 44 52·0			
		int. contact	49 56·5	+3 24·3	,,	
		Tr. E. int. contact	4 16 2·1		,,	Clouds.
		bisection	19 32·6	+0 27·4		Doubtful.
	I.	Tr. E. int. contact	7 46 18·0 P.M.		,,	Probably somewhat late.
		bisection	48 7·0	+1 53·0		
		ext. contact	51 18·5			
20		Oc. D. ext. contact	9 55 42·4		S. P.	
		bisection	56 54·9	+0 5·1		
21		Ec. R.	1 0 22·5 A.M.	+0 21·1	W. C.	Full brightness 4m later.
22		Ec. R.	7 30 10·0 P.M.	−0 48·0	,,	Clouds, not more than 10s late.
26	IV.	Tr. E. bisection	10 3 48·8	+3 11·2	S. P.	Very dark brown centre, with light brown ring; centre darker than any band. Very bright when near edge of disk.
27		Sh. I. first seen	1 30 12·6 A.M.			
		int. contact	34 0·1	−0 53·6	W. C.	Tremulous.
	I.	Tr. I. ext. contact	2 31 49·2		,,	Clouds, definition bad.
		bisection	35 21·7	+0 38·3		
		int. contact	38 8·7			
		Sh. I. first seen	3 29 49·2	−0 49·2	,,	Unsteady.
		Oc. D. ext. contact	11 38 15·5 P.M.		,,	
		bisection	41 16·4	+2 43·6		
28	I.	Ec. R.	2 54 34·5 A.M.	+0 43·3	W. C.	Full brilliancy 5m later.
	III.	Oc. D. ext. contact	7 44 43·3 P.M.			
		bisection	47 35·3	−1 35·3	S. P.	
	I.	Sh. I. bisection	10 0 28·4	−2 28·4	,,	
		Tr. E. int. contact	11 19 45·7		,,	
		bisection	21 47·4	+1 12·6		
		ext. contact	23 43·9			
	III.	Oc. R. bisection	11 26 28·9	+1 31·1	,,	
		Ec. D.	11 33 22·4	−1 20·8	,,	
29	I.	Sh. E. int. contact	0 13 2·0 A.M.		,,	

Date. 1873.	Satellite.	Phenomenon.	Observed G.M.T.	G.M.T. from N.A.—Obs.	Observers.	Remarks.
			m s	h m s		
		bisection	0 14 16·5	+3 43·5		Very indistinct.
Mar. 29	III.	Ec. R.	3 3 57·3	−0 39·5	W. C.	Unsteady.
	I.	Ec. R.	9 24 1·8 P.M.	−0 3·6	,,	Full brilliancy 2m or 3m later.
31	II.	Sh. I. bisection	9 15 6·4	−3 6·4	S. P.	
		int. contact	16 7·5			
		Tr. E. int. contact	10 5 2·0			
		bisection	7 43·0	+1 17·0		
		ext. contact	10 14·0			
		Sh. E. int. contact	11 57 34·6		,,	
		bisection	59 50·6	+5 9·4		
April 4	I.	Oc. D. ext. contact	1 26 56·0 A.M.		W. C.	Cloudy, tremulous.
		bisection	30 8·5	+1 51·5		
	IV.	Oc. D. ext. contact	2 20 23·7	+10 7·0	,,	Clouds. Not good.
		last seen	23 22·2			
	I.	Tr. I. ext. contact	10 52 31·5 P.M.	−2 37·0	S. P.	Clouds.
		int. contact	56 42·5			Probably rather late.
	III.	Oc. D. ext. contact	11 16 41·0 P.M.		,,	
		bisection	19 27·5	−0 27·5		
	I.	Sh. I. bisection	11 55 17·2	−2 17·1	,,	
		int. contact	57 5·7			Only approx.
5		Tr. E. int. contact	1 8 50·0 A.M.		,,	Clouds.
		bisection	10 6·0	+1 54·0		
		ext. contact	11 48·5			
		Oc. D. bisection	8 0 16·1 P.M.	−0 16·1	W. C.	Thin clouds.
7	II.	Tr. I. bisection	9 43 53·2	−3 53·2	S. P.	
		int. contact	45 59·2			Clouds, indistinct.
		Sh. I. bisection	11 49 57·0	−1 57·0	,,	Cloudy.
		int. contact	52 38·5			
8		Tr. E. int. contact	0 30 0·5 A.M.		,,	
		bisection	32 49·0	+0 11·0		
		ext. contact	35 46·5			
		Sh. E. bisection	2 35 45·9	+5 14·1	W. C.	Faint, unsteady.
	III.	Sh. E int. contact	8 47 45·1 P.M.		,,	Shadow very dark.
		bisection	51 5·6	+10 54·4		
12	I.	Sh. I. bisection	1 50 28·5 A.M.	−1 33·5	,,	Glimpses through clouds.
		int. contact	52 14·0			
13		Tr. E. bisection	9 28 42·8 P.M.	+0 17·2	S. P.	Mist, steady.
		ext. contact	30 50·3			
		Sh. E. int. contact	10 30 57·0		,,	Clouds, difficult.
		bisection	33 2·0	+3 58·0		
18		Tr. I. ext. contact	2 24 35·7 A.M.		W. C.	Low, unsteady.

Date. 1873.	Satellite.	Phenomenon.	Observed G.M.T. h m s	G.M.T. from N.A. — Obs. m s	Observers.	Remark.
Apr. 18		bisection	2 27 34·7	+4 25·3		
		int. contact	29 57·2			
19	I.	Oc. D. ext. contact	11 37 46·0 P.M.		S. P.	Mist.
		bisection	39 45·5	+0 14·5		
20		Tr. I. ext. contact	8 59 26·5		,,	
		bisection	9 2 3·0	−2 3·0		
		int. contact	4 13·0			
		Sh. I. bisection	10 13 22·6	−1 22·6	,,	
		int. contact	14 45·6			
		Tr. E. int. contact	11 17 14·1		,,	Passing mist.
		bisection	19 28·1	+0 31·9		
		ext. contact	21 19·1			
	IV.	Oc. R. bisection	11 40 28·1	−0 28·1	,,	
		ext. contact	43 57·6			
21	I.	Ec. R.	9 37 3·7	+0 1·2	,,	Full brightness 2^n or 3^m later.
23	III.	Tr. E. int. contact	0 1 30·0 A.M.		W. C.	Tremulous.
		bisection	6 16·5	+2 43·5		
		ext. contact	10 43·5			
	II.	Oc. D. ext. contact	9 40 29·3 P.M.		S. P.	
		bisection	43 28·3	+0 28·3		
29	I.	Sh. E. bisection	8 54 9·5	+0 50·5	W. C.	Faint, unsteady.

Stonyhurst Observatory,
May 2, 1873.

Observations of Procyon as a Double Star.

By O. Struve.* (Abstract.)

(*Communicated by the Astronomer Royal.*)

For the last twenty-two years the author has made one or two comparisons every year of this star with two telescopic stars, about six minutes of R.A. on each side of it, with the view of obtaining material for a confirmation of Bessel's theory of its irregular proper motion. On the 19th of March last whilst thus observing it, under exceptionally favourable atmospheric

* Communicated to the Academy of Sciences of St. Petersburg, 1873, April 8. Abstracted by W. T. Lynn, B.A.